21496 RSPA-2002-13521-22

DEPT OF TRANSPORTATION
DOCKETS

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EXEMPTION EVALUATION FORM
(Revised as of May 20, 1998)

PART 1 APPLICANT

1A. Exemption Number : 13135

Application Number: 45161

Project Officer : Stanley Staniszewski

1B. Date of Application: 8/30/02

1C. Name of Applicant: Alan Eft

Title:	Program Safety Manager
Company Name:	Space Systems Loral
Address:	3825 Fabian Way
	Palo Alto, CA 94304-4604
Phone Number:	650-852-5507

1D. U.S. Agent for foreign applicant or Consultant Name:

Company name:
Address:
Phone Number:

1E. Summary of What Applicant is Requesting:
To authorize transportation in commerce of Satellite assembly containing non-DOT Specification pressure vessels pressurized with certain Division 2.2 materials.

1F. Regulation(s) exempted:49 CFR § 173.302 in that a non-DOT specification cylinder, pressure vessel is authorized.

1G. Modes of Transportation:

1 Motor Vehicle (x) 2 Rail Freight ( )
3 Cargo Vessel ( ) 4 Cargo Aircraft (x)
5 Passenger Aircraft ( )

PART 2 REVIEW FOR DOCKETING

(X) Application contains sufficient information to support

docketing.

( ) Application is incomplete or unnecessary and should be returned for the following reason(s).

PART 3 HAZARDOUS MATERIALS

3A. Hazardous Materials to be shipped:

Proper Shipping Name/ Hazardous Materials Description	Hazard Class/ Division	Identi-fication Number	Packing Group
Argon, compressed	2.2	UN1006	N/A
Helium, compressed	2.2	UN1046	N/A
Nitrogen, compressed	2.2	UN1066	N/A
Xenon, compressed	2.2	UN2036	N/A

3B. Is the hazardous material capable of being detonated? (If No - go to 3C) no

If so, under what conditions?

(1) What special precautions have been taken to prevent these conditions in transportation?

(2) Has the hazardous material been classed as an explosive? _

- Has it been tested and approved under § 173.56?
- Is stabilization required and what type?

3C. Other risks presented by the material that warrant special assessment. (e.g. flammable or toxic gases produced upon contact with water, material can initiate or enhance a fire, article or device contains an ignition source) none.

PART 4 PACKAGING

4A. Is the applicant seeking an exemption from the packaging requirements?
(If No - Go on to Part 5)

4B.

__ Non authorized specification package.
__ Authorized Specification package with quantity or size variation.
__ Material change.
__ Over authorized pressure.
_X_ Non specification package. Most comparable spec. package.

4C. What are the possible failure modes of the packaging? Rupture, leakage, permanent expansion, performance reduction of packaging.

Is the material of construction appropriate? Yes

Will the packaging integrity be sufficient? yes

In the case of a pressurized packaging, will the package adequately contain any pressure that might develop? yes

Does packaging meet the performance requirements for air transportation? yes

Have evaluation of tests results shown the package to be equivalent? yes

4D. Are special handling measures needed (specify)? no

PART 5 SPECIAL TRANSPORT AND INFORMATIONAL CONTROLS

5A. Is the applicant seeking an exemption from Special Transport and Informational Controls? No (If No - go to Part 6)

5B. Indicate control from which variance is sought. (i.e., placarding requirements, etc.)

5C. What controls have been offered or might be appropriate to mitigate risks otherwise presented with the exemption?

5D. What special data collection and reporting requirements are needed to document experience and exemption performance?

PART 6 SHIPPING EXPERIENCE

6A. What has the generally shipping experience been with this type of material, package, and operation? Exemplary, 36 years with no shipping or transport incidents.

6B. Can any rough estimate be made on the extent of the use of this exemption? Yes. How many shipments will be made and how much material will be transported? 10 Shipments per year.

6C. Is this a new package with no shipping experience? No

PART 7 SAFETY AND RISK ASSESSMENT

7A. 49 CFR § 107.105(d) prescribes requirements for justification of an exemption through comparisons with established levels of safety and risk assessment. Has the applicant demonstrated equivalent levels of safety or provided an appropriate risk analysis? Yes

7B. What are the hazards (worst case) posed by the proposed exemptions? What could go wrong? Are the risks significant? What is the degree of uncertainty as to likelihood or consequences?

Remote/Negligible:
Stored energy release-explosion-material failure-personnel injured.
Remote/critical:
Stored energy release-leakage-material failure.

Overpressure or impact sufficient to rupture the vessels is the worst case.

Overpressure from a fire envelopment scenario is highly unlikely, given the design requirements. The vessels are adequately protected by being integrated into the satellite configuration and by a specialized satellite shipping container described in the application.

7C. What are the benefits to the public and the applicant of granting the exemption? What trade-offs have been made?

Public - Level of safety is maintained.
Applicant - Level of safety is maintained.
What trade-offs have been made?*NONE.*

7D. Does this exemption (and other similar exemptions) point to the need for possible regulatory changes? No If so what other information is needed to support a regulatory change.

PART 8 DOCKET COMMENTS/INFORMATION

8A. Date checked: 3/18/03

8B. Comments: none (If Yes, summarize)

8C. Has **CONFIDENTIAL** or **PROPRIETARY** information (49 CFR 107.5) been considered in this application? Yes

PART 9 OVERALL EVALUATION & RECOMMENDATION

Exemption is patterned after Lorals' DOT-E 11103 and 12341 for a similar configured satellite. The pressure vessels are charged with nitrogen or helium to a "transportation" service pressure (TSP) that is 0.2 or 0.1 times the actual "launch" service pressure as described below.

Pressurant tank (MIL-STD-1522A)an Aluminum 6061-T6 Alloy cylinder overwrapped with T1000. Design margin for transportation is 14:1, based on a TSP of 275 psig and an actual burst pressure in excess of 5500 psig. Service pressure is 4000 psig for 65L Helium tank and 2700 psig for 82L Helium tank and 65L Xenon tank.

The pressure vessels are further protected during transportation by being integrated within the satellite, which in turn is secured within an environmentally controlled shipping container described in documentation on file.

The packaging design and in service operational controls detailed in the application exceed that which is required by regulation for the requested hazardous materials.

Recommendation: Grant exemption as drafted.

Office of Hazardous Materials Technology (OHMT)
Office of Hazardous Materials Exemptions and Approvals (OHMEA)

Office: DHM-22.2

Project Officer/Date: 3/18/03

Reviewer/Date:

Office Director/Date: 3/19/2003